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Neu eingegangene Arbeiten

I. Rudnick, University of California, Los Angeles, California 90024:
Comments on "Coupling Between Pressure and Temperature Amplitude in Waves of Second Sound in Liquid Helium" by A. Hofmann, K. Keck and G. V. Schubert. Z. Physik, 231, 177 (1970)

W. Fischer, H. Hühnermann und K. Mandrek, Physikalisches Institut der Universität Marburg:
Optische Untersuchung der Hyperfeinstruktur einiger La I-Linien und Interpretation der gemessenen A-Faktoren (Optical Investigation of the Hyperfine Structure of Some La I-Lines and Interpretation of the Measured A-Values)

Several La I transitions were investigated by means of optical interference spectroscopy. All A-values of the levels of the configuration $5d\,6s\,6p$ with $J=9/2$, $7/2$, and $5/2$ were measured. Applying sum rules, the one-electron a-value $a_{6s}(5d\,6s\,6p)$ was derived. It is shown that a promising interpretation of the measured A-values cannot be done without properly considering core-polarization and configuration interaction with adjacent configurations.

H. Hutzelmeyer, Institut für Theoretische Physik der Universität zu Köln:
On the Calculation of Densities of Light Nuclei

For certain classes of wave functions one can calculate the exact expressions of the charge distribution and similar densities. One has to make use of the asymptotic behaviour of these wave functions whose radial parts have to be of the form $r^{2k}e^{-\beta r^2}$, in order to obtain a closed form for $\rho(\vec{r})$; the problem is then reduced to the computation of moments, which can be evaluated by a generating function technique. No complications due to a spurious center-of-mass motion do appear. The method is most appropriate for the calculation of densities of refined cluster model functions or translationally invariant shell model functions (both for a nucleon or an alpha-particle shell model) including short-range correlation factors that take care of a soft core in nuclear potentials.

A. Müller-Arnke, Institut für Theoretische Kernphysik der Technischen Hochschule Darmstadt:
Calculation of Negative Parity States in ^{17}O

A shell model calculation employing nonspurious $1\hbar\omega$ and $3\hbar\omega$ excitations is presented. The results suggest that the lowest negative parity states are of $2p\,1h$ type whereas the second $1/2^-$ and higher $3/2^-$ states have dominant $4p\,3h$ components.

H.-J. Sommers, Institut für Theoretische Physik der Universität Göttingen:
Berechnung des oberflächensenkrechten kritischen Magnetfeldes für supraleitende Filme

On the basis of the BCS theory a simplified system of equations for the calculation of the perpendicular critical magnetic field, $H_{c\perp}$, for superconducting films is derived with the help of "the method of the correlation function", developed by Lüders. In the vicinity of $T=T_c$ for all film thicknesses and mean free paths the problem becomes mathematically equivalent to the calculation of the residual resistance of the film. The results are in good agreement with the experiments of Harper and Tinkham and of others. Further limiting cases are investigated: on the one hand specular reflection and weakly diffuse surface scattering, on the other hand diffuse reflection and very thin films.

K. Günther und F. Fischer, Physikalisches Institut der Westfälischen Wilhelms-Universität Münster:
U_2-Zentren in CsCl-, CsBr- und CsJ-Kristallen (U_2-Centers in CsCl-, CsBr- and CsJ-Crystals)

U_2 Centers are investigated in cesium halide crystals. Optical absorption measurements show the hydrogen atom being square planarly surrounded by four anions. Refering to this center model the energy of the U_2 band is calculated. A dichroic absorption is found when the tetragonal U_2 centers are aligned by irradiation with U_2 light.

M. Piiparinen, A. Anttila and M. Viitasalo, Department of Physics, University of Helsinki, Helsinki, Finland:
A Study of the Excited States of ^{23}Na from the ^{22}Ne$(p, \gamma)^{23}$Na Reaction

The gamma decays of 19 ^{22}Ne$(p, \gamma)^{23}$Na resonances in the range of $E_p=400-1\,300$ keV have been investigated by means of a 38 cm^3 Ge(Li) detector. Branching ratios of the resonances and bound states were determined. Gamma-ray energy measurements yield the energies of 20 bound states and the value of 8794.0 ± 1.5 keV for Q. The existence of the 3913 keV doublet state was studied through the (p, γ) reaction. No evidence for such a doublet was found.

G. von Oppen, Institut für Kernphysik der Technischen Universität Berlin:
Stark-Effekt-Untersuchungen an Strontium durch Nachweis von $\Delta\mu=1$-level crossing-Signalen mit linearpolarisiertem Licht

Zero field-level crossing signals of the $5s\,5p\,{}^1P_1$-level of the Sr I-spectrum were investigated in superimposed homogeneous magnetic and electric fields. The electric field-dependent $\Delta\mu=1$-crossings were detected by resonance scattering of linearly polarized light of the 4607 Å-line, the directions of polarization forming an oblique angle with the field axis z. The experiments yielded the tensor polarizability of the $5s\,5p\,{}^1P_1$-level $\alpha_{ten}=15.7$ kHz/(kV/cm)^2. This value is related to oscillator strengths of electric dipole transitions from the $5s\,5p\,{}^1P_1$-level to $^1S_0$- and $^1D_2$-levels.

The level crossing signals, obtained by resonance scattering of *linearly* polarized light, are discussed using a formula, originally derived by Rose and Carovillano for level crossing experiments with *unpolarized* light beams. The applicability of the formula to our experiments results from an equivalence of level crossing measurements with unpolarized and those with linearly polarized light beams.

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In glücklicher Ergänzung zu C. Reids „Hilbert" und zu den eben erschienenen „Gesammelten Abhandlungen" wird hier eine „Hommage à Hilbert" vorgelegt, die u. a. einen grundlegenden Aufsatz Reidemeisters und verschiedene Äußerungen Hilberts selbst enthält, die seine Stellung innerhalb der Mathematik und im Kreis der Kollegen widerspiegeln.
Auf einer beigefügten Schallplatte ist als einzigartiges Zeugnis der Persönlichkeit Hilberts eine von ihm gehaltene Rede aus dem Jahre 1930 mit dem Thema „Naturerkennen und Logik" festgehalten.

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Über den Symbolismus der Mathematik und mathematischen Physik
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Adolf Hurwitz
Über meine Tätigkeit in Göttingen

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Constance Reid:

Hilbert

By Constance Reid,
San Francisco, CA.
With an appreciation of Hilbert's mathematical work by Herrmann Weyl

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1962, zu Hilberts 100. Geburtstag, erklärte sein Schüler Richard Courant: „... ich fühle, daß die Besinnung auf den Hilbertschen Geist gerade heute für die Mathematik und die Mathematiker von großer aktueller Bedeutung ist."

Es sind noch viele Angehörige derjenigen mathematischen Schule am Leben, die sich in der Zeit nach der Jahrhundertwende in Göttingen um Hilbert und Felix Klein entwickelte. Constance Reids Biographie lebt von der mündlichen Tradition, die die Einzigartigkeit dieses ersten mathematischen Instituts Deutschlands anschaulich wiedergibt. Göttingen wurde später zu einem Mythos und zum Vorbild von Institutsgründungen in aller Welt. Constance Reid schildert das Wirken von Hilberts einzigartiger Persönlichkeit in dieser Atmosphäre und die mathematischen Errungenschaften, die immer mit seinem Namen verknüpft sein werden.

■ **Bitte Prospekt anfordern!**

Überwiegend Arbeiten aus den Gebieten der Kern- und Elementarteilchenphysik

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